Parameter	Version 4.4 - 6/28/2010					
Section Committee Commit	Parameter	Value	Units	Quality	Notes	
Image: No detailed design yet. Set by the heat loss coefficient	Cryostat Dit	Value	Offics	Quanty	Hotes	
The insulation text tops coefficient	-	1	m	**	No detailed design yet. Set by the heat loss coefficient	
Concrete pit thickness 0.5 m						
Provided 19.50 m					The histiation design goal	
Pit Depth	· · · · · · · · · · · · · · · · · · ·					
## Length 977.0 m 27006 m²s 1 mm 27006 m²s 2 mm 27000 m²s 2 mm 2						
Pt Volume						
Prisoration & Prisoration						
Insulation heat loss						
Mux level						
Mux New 128		32	kW			
Analog front end power				1		
Provided p						
Power conversion efficiency						
Electronics power total Electron drift velocity Electr	•					
Career Common C	•				Needs to be defined	
ENC. 1743 electrons Paul Rubinov parameterization. Ref BNL docdb 626	Electronics power dissipation	15	mW/chan	**		
Domization (1 MIP after recombination) 3 C	Electronics power total	9.7	kW			
Electron drift velocity	ENC	743	electrons		Paul Rubinov parameterization. Ref BNL docdb 626	
Electron drift velocity						
Electron drift velocity	Ionization (1 MIP after recombination)	3	fC			
Electron diffit time 1.54 ms		1.6	mm/micro-sec	***		
Set to achieve minimum S/N = 8 Set to achieve minimum S/N = 8	·					
Equivalent O2 contamination 214 ppt				**	Set to achieve minimum S/N = 8	
Signal to noise ratio max Signal to noise ratio min Signal to noise ratio min Sampling rate 12 MHz Priff field Cathode high voltage 123 kV Grid bias voltage 1480 V 149 Adjust to achieve transparency U plane bias voltage 1480 V 148 Adjust to achieve transparency V plane bias voltage 149 V 140 Adjust to achieve transparency V plane bias voltage 140 V 141 Adjust to achieve transparency V plane bias voltage 140 V 141 Adjust to achieve transparency V plane bias voltage 140 V 141 Adjust to achieve transparency Adjust to	<u>'</u>				sector duniero minimam si, iv	
Signal to noise ratio min Sampling rate 2 MHz Priffield 500 V/cm *** Cathode high voltage Grid bias voltage 480 V *** Adjust to achieve transparency U plane bias voltage 700 V *** Adjust to achieve transparency V adjust to collect electrons **Crogenic** *** *** *** *** *** *** ** ** ** **	·		ррс			
Sampling rate 2 MHz						
High Voltage Cathode high voltage 123 kV						
Drift field			IVIHZ			
Cathode high voltage				444	T	
Grid bias voltage				***		
U plane bias voltage		1		de de		
V plane bias voltage						
Collection plane bias voltage 700 ** Adjust to collect electrons Cryogenics ** Provides redundancy during operation. None during initial purification ** Provides redundancy during operation. None during initial purification ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover similar to ICARUS ** Set to achieve LAr volume turnover set in ICARUS ** Assumes 30m (60 psi) head pressure ** Assumes 30m (60 psi) head pressure ** From Arup concept report ** From Arup concept report ** From Arup concept report **						
Num recirculation pumps						
Num recirculation pumps 4		700	V	**	Adjust to collect electrons	
Recirculation pump flowrate 47,000 kg/hr ** Set to achieve LAr volume turnover similar to ICARUS 34 m^3/hr 150 gpm 188,000 kg/hr 136 m^3/hr 598 gpm 140,000 kg/hr 136 m^3/hr 150 gpm 140,000 kg/hr 140 kW 140,000 kg/hr 140,000	Cryogenics					
Recirculation pump flowrate 47,000 kg/hr ** Set to achieve LAr volume turnover similar to ICARUS 34 m^3/hr 150 gpm 188,000 kg/hr 136 m^3/hr 598 gpm 140,000 kg/hr 136 m^3/hr 150 gpm 140,000 kg/hr 140 kW 140,000 kg/hr 140,000						
Recirculation pump flowrate	Num recirculation pumps	4			Provides redundancy during operation. None during initial purification	
150 gpm 188,000 kg/hr 136 m^3/hr 598 gpm		47,000	kg/hr	**	Set to achieve LAr volume turnover similar to ICARUS	
Recirculation pump flowrate - max 188,000 kg/hr 136 m^3/hr 598 gpm LAr volume turnover @ max flowrate 5 days Pump power 6 kW ** Assumes 30m (60 psi) head pressure Pump power - max 24 kW ** Assumes 30m (60 psi) head pressure Refrigeration load 48 kW Refrigeration load - max 66 kW Refrigeration plant capacity 50 kW ** From Arup concept report Refrigeration power 8efrigeration power 560 kW ** From Arup concept report Refrigerator output 140 kW ** From Arup concept report 140 kW 140 kW 150 kW 160 kW 170	Recirculation pump flowrate	34	m^3/hr			
Recirculation pump flowrate - max 136 m^3/hr 598 gpm		150	gpm			
Recirculation pump flowrate - max 136 m^3/hr 598 gpm		188,000	kg/hr			
LAr volume turnover @ max flowrate	Recirculation pump flowrate - max					
LAr volume turnover @ max flowrate						
Pump power						
Pump power 6 kW ** Assumes 30m (60 psi) head pressure Pump power - max 24 kW ** Assumes 30m (60 psi) head pressure Refrigeration load 48 kW ** Assumes 30m (60 psi) head pressure Refrigeration load - max 66 kW ** From Arup concept report Refrigeration plant capacity 50 kW ** From Arup concept report Refrigeration power 560 kW ** From Arup concept report Refrigerator output 140 kW ** From Arup concept report LN2 storage dewar 100 m^3 ** From Arup concept report LN2 storage dewar backup capacity 3 days ** From Arup concept report Detector Depth 800 ft * * Cosmic ray rate 0.06 Hz/m^2 * Cosmic ray rate - detector top 64 Hz Hz	LAr volume turnover @ max flowrate	5	davs			
Pump power - max	Pump power			**	Assumes 30m (60 psi) head pressure	
Refrigeration load						
Refrigeration load - max 66 kW Refrigeration plant capacity 50 kW ** From Arup concept report Refrigeration plant margin 4% ** From Arup concept report Refrigeration power 560 kW ** From Arup concept report Refrigerator output 140 kW ** From Arup concept report LN2 storage dewar 100 m^3 ** From Arup concept report LN2 storage dewar backup capacity 3 days ** From Arup concept report Detector Depth 800 ft * 240 m ** Cosmic ray rate 0.06 Hz/m^2 Cosmic ray rate - detector top 64 Hz					presented sorti (oo pai) ficua pressure	
Refrigeration plant capacity Refrigeration plant margin Refrigeration power Refrigerator output LN2 storage dewar Detector Depth Detector Depth Cosmic ray rate Cosmic ray rate Cosmic ray rate LW4 kW ** From Arup concept report ** Fr						
Refrigeration plant margin 4% Refrigeration power 560 kW ** From Arup concept report Refrigerator output 140 kW ** From Arup concept report LN2 storage dewar 100 m^3 ** From Arup concept report LN2 storage dewar backup capacity 3 days ** From Arup concept report Detector Depth 800 ft * 240 m ** Cosmic ray rate 0.06 Hz/m^2 Cosmic ray rate - detector top 64 Hz				**	From Arun concent report	
Refrigeration power 560 kW ** From Arup concept report Refrigerator output 140 kW ** From Arup concept report LN2 storage dewar 100 m^3 ** From Arup concept report LN2 storage dewar backup capacity 3 days ** From Arup concept report Detector Depth 800 ft * 240 m ** Cosmic ray rate 0.06 Hz/m^2 Cosmic ray rate - detector top 64 Hz	<u> </u>				гот Агар сопсерстерогс	
Refrigerator output	·			**	F A	
140 W	<u> </u>					
100 H z						
Detector Depth 800 ft *						
800 ft *		3	days	**	From Arup concept report	
Detector Depth 240 m Cosmic ray rate 0.06 Hz/m^2 Cosmic ray rate - detector top 64 Hz	Detector Depth		ı			
240 m	Detector Depth			*		
Cosmic ray rate - detector top 64 Hz	Detector Beptil					
· · · ·	Cosmic ray rate	0.06	Hz/m^2			
Cosmic ray rate - APA top 0.7 Hz	Cosmic ray rate - detector top	64	Hz			
	Cosmic ray rate - APA top	0.7	Hz			